

Basic Psychological Needs Scale in a Croatian Sample: A (Non)Questionable Structure and Scale Properties

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Abstract

Basic Psychological Needs Theory, one of six mini-theories forming the Self-Determination Theory (SDT), postulates three innate and universal basic psychological needs: need for autonomy, need for competence, and need for relatedness. The SDT assumes non-unidimensionality of basic psychological needs satisfaction scales, but at the same time some authors form three scale scores and an additional composite general score as an index of general need satisfaction. In this study we wanted to test the plausibility of a general basic psychological needs satisfaction factor hypothesis. We wanted to address the fundamental psychometric properties of the Croatian version of the Basic Psychological Needs Satisfaction Scale - General in more detail using the dataset of 668 individual self-assessed scores. Based on the reliability indicators (Cronbach's alpha, Omega total, Greatest Lower Bound, Explained Common Variance) only relatedness and composite general score scales reach satisfactory levels. On the other hand, based on Exploratory Factor Analysis hierarchical models, there is no latent generalized factor of basic psychological needs satisfaction and three specific group factors of basic psychological needs. Hypothesis of a general factor, representing a global basic psychological needs satisfaction construct, seems non-plausible. It is difficult to make clear recommendations as to how a researcher in this field should form scale scores at this point, so two possible strategies for scale revision are discussed.

Keywords: self-determination theory, basic psychological needs, Cronbach's alpha, omega, exploratory factor analysis hierarchical models

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Introduction

Self-Determination Theory (SDT; Deci & Ryan, 2014; Ryan & Deci, 2008) is a human motivation macro-theory originally based on four, but since expanded to include six, mini-theories, one of which is the Basic Psychological Needs Theory. Basic Psychological Needs Theory postulates three basic psychological needs (need for autonomy, need for competence, and need for relatedness) as innate, universal to all humans and essential for psychological well-being and intrinsic motivation (Deci & Ryan, 2000; Vansteenkiste et al., 2020). Ryan and Deci (2008) describe the need for autonomy as the source of behavior that comes from within us and is not controlled by others. The need for competence represents being effective in one's own actions and the expression of one's own abilities, while the need for relatedness stands for connectedness and the feeling of belonging to relevant others. All three basic psychological needs are correlated with personality traits (e.g., Vukasović Hlupić et al., 2022) and are heritable (Bratko et al., 2022). After investigating the neural basis of basic psychological needs, Reeve and Lee (2019) concluded that the satisfaction of basic psychological needs is associated with activity in the striatum, activity in the anterior insula and functional co-activation between these two brain areas.

Basic psychological needs were operationalized using needs satisfaction scales that were initially developed to be context-specific (e.g., relationships or work) and only later context-free, with a 21-item measure to assess basic needs satisfaction in general – the Basic Psychological Needs Satisfaction Scale - General (BPNSS-G; Deci & Ryan, 2000; Gagné, 2003). Self-Determination Theory assumes the non-unidimensionality of The Basic Psychological Needs Satisfaction Scale, with three distinct basic psychological needs (autonomy, competence, relatedness), but at the same time some authors form three scale scores plus an additional composite general score or an average of the three scale scores as an index of general needs satisfaction (e.g., Deci et al., 2001; Gagné, 2003; Meyer et al., 2007; Vismoradi-Aineh et al., 2022; Wei et al., 2005).

Benson (1998) proposed three stages required to establish strong construct validity: substantive validity, structural validity, and external validity. The existing literature on the SDT psychological needs scales addresses both the theoretical basis (first stage) and the correlates and validity (third stage). However, the second stage is still somewhat lacking. Cooke et al. (2016) conducted a literature review to identify self-report instruments for measuring well-being and closely related constructs (i.e., quality of life, basic psychological needs) and to critically evaluate their conceptual and psychometric properties. The authors reported that there was considerable variability in the amount and type of validity evidence for the instruments. However, they concluded that there is a significant lack of clarity about the nature of the constructs measured by the well-being instruments in general. They also point out that the reliability coefficients reported for all instruments (not

specifically for the BPNSS-G) varied and were often too low for research and clinical purposes. Specifically, Cronbach's alpha coefficients ranged from .39 to .98, with only 33% of reports containing estimates of test-retest reliability that ranged from .19 to .98.

Internal consistency indicators, or more precisely Cronbach's alpha, have often been (mis)used in psychological literature as indicators of the structural validity of a scale. At the same time, there are several other reliability indicators (e.g., Omega total, Omega hierarchical) that are suggested to be better and more valid (Revelle & Wilt, 2013). Theoretically, Cronbach's alpha can and should only be used as an indicator of internal reliability that is meaningful for unidimensional scales. In practice, this would mean that if the BPNSS-G is intended to measure three distinct basic psychological needs, Cronbach's alpha could be used as an indicator of internal consistency for each of the three scales. At the same time, however, reporting Cronbach's alpha for the entire scale as a general score would not be meaningful. On the other hand, if the BPNSS-G is expected to measure only one global needs satisfaction score, then it would not be logical to report Cronbach's alpha indicators for three separate scales, but only for the global scale score.

Johnson and Finney (2010) note that the authors had not initially conducted exploratory or confirmatory factor analyses to test the theoretically hypothesized factor structure of the BPNSS-G. Therefore, they provide a narrative review of research on the BPNSS-G and the results of confirmatory factor analyses to examine the one- and three-factorial solutions. They concluded that neither model fit the empirical data well. Finally, they proposed a modified 16-item scale, but called for further validation of the psychometric properties.

The Aim of the Present Study

Since the SDT postulates three distinct motivational constructs described as basic psychological needs, and the BPNSS-G proposes three distinct scale scores to operationalize these constructs, one would expect a clear three-factorial scale structure. On the other hand, since the empirical correlations between these three scales are statistically significant and some authors form a global scale score (e.g., Deci et al., 2001; Vismoradi-Aineh et al., 2022), the aim of this study is to test the plausibility of the general (basic psychological needs satisfaction) factor hypothesis. We would like to address the fundamental psychometric properties of the Basic Psychological Needs Satisfaction Scale-General in more detail.

Method

Participants

Individuals identified as potential twin pairs from a specific age cohort in Zagreb area were contacted to participate in a larger Croatian twin project. All participants signed a consent form, their participation was voluntary, and there was no form of compensation for their participation. The dataset was anonymized prior to any analyses. The final sample included in this study consisted of 668 individuals (334 twin pairs) with a mean age of 18.63 years ($SD = 2.31$, range: 15-22). Most individuals had completed high school (55%) or were still in high school (40%).

Instruments

The Basic Psychological Needs Satisfaction Scale - General (BPNSS-G; Deci & Ryan, 2000) focuses on the general satisfaction of needs in a person's life. It consists of 21 items that assess the degree of satisfaction of three needs: autonomy, competence, and relatedness. The self-reported answers were given on a 7-point Likert scale (1 = *not at all true* to 7 = *very true*). After recoding the reversed items, three scale scores were formed as the sum of the respected items, with a higher score indicating a higher degree of need satisfaction. The Croatian translation of the scale items is provided in the Appendix and has been used in previous studies (e.g., Bratko & Sabol, 2006; Butkovic et al., 2020).

Procedure and Planned Data Approach

Since there are strong criticisms of the statistical procedures used so far to assess the general factor (of personality), we used the procedures proposed by Revelle and Wilt (2013), *R* software, version 4.3.1, package *psych* (Revelle, 2023), Exploratory Factor Analysis to estimate the general and group factor saturations with Schmid-Leiman transformation. We report several indicators: ω_{total} (the total reliable variance of the test/questionnaire/scale), ω_g (the proportion of variance explained by the general factor), GLB (Greatest Lower Bound), ECV (Explained Common Variance of the general factor), RMSEA (The Root Mean Square Error of Approximation), and α (Cronbach's alpha), as well as two graphical representations of the results (an exploratory hierarchical solution versus an exploratory bifactorial solution). As a rule of thumb for interpreting some of the possibly lesser-known indicators, $\omega_g \approx .70-.80$ is considered typical for mental ability tests with a true *g*-factor, and $ECV \geq .50$ is expected for a general factor (Revelle & Wilt, 2012).

We conducted multiple analyses in three steps. First, we calculated four indicators of internal reliability (Cronbach's alpha coefficient, McDonald's ω coefficient, GLB, and ECV) for each of the theoretically formed basic psychological needs scales and for the entire scale as an indicator of a general needs satisfaction

score. Second, to test the plausibility of the general factor hypothesis for BPNSS-G, we conducted an EFA, saved three factor scores representing three distinct basic psychological needs, and one general factor score representing the indicator of the general basic psychological needs satisfaction. We then reviewed the intercorrelations between the theoretically based scale scores and the (supposedly) empirically corresponding factor scores. Finally, we used Revelle and Wilt's (2013) recommendations for hierarchical EFA models with three group factors (representing three basic psychological needs) and one general factor (representing an indicator of the general basic psychological needs satisfaction) and commented on the indicators for such a model fit.

By presenting these indicators step-by-step, we wanted to test the plausibility of the general factor hypothesis for the BPNSS-G and contribute to the further development of a (more) transparent factor structure of the BPNSS-G.

Results

Data Analysis

Internal Consistency Scale Indicators

As shown in Table 1, the reliability indicators for two scales (autonomy and competence) are below the commonly used and reported benchmark values (e.g., DeVellis, 2012; Nunnally, 1994), and for the other two scales (relatedness and general BPNSS-G composite score) they reach the level of $\geq .80$. Although these results do not support the conclusion of required reliability for two scales, they show a tendency toward satisfactory reliability and homogeneity for the composite score.

Table 1

Descriptive Statistics and Reliability Indicators for Three Theoretically Formed Basic Psychological Needs Scale Scores and One General Needs Composite Scale Score (N = 668)

	<i>M</i>	<i>SD</i>	<i>k</i>	α	ω_{total}	GLB	ECV
Autonomy	36.06	6.27	7	.61	.72	.69	.38
Competence	30.03	5.80	6	.62	.76	.71	.35
Relatedness	46.79	6.92	8	.79	.84	.84	.52
BPNSS-G	112.89	14.87	21	.82	.85	.90	.37

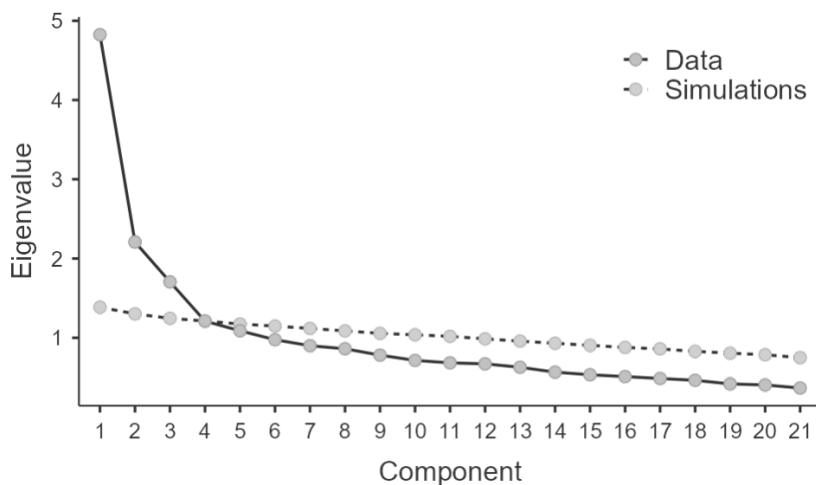
Note. BPNSS-G = general needs composite scale score (sum of all items); *k* = number of items in a scale; α = Cronbach's alpha; ω_{total} = Omega total; GLB = Greatest Lower Bound; ECV = Explained Common Variance.

Exploratory Factor Analyses (EFA)

The results of an EFA (extraction method: principal component analysis, oblimin rotation, eigenvalues greater than 1) show that there are five components with an Eigenvalue greater than one (4.83, 2.21, 1.71, 1.21, 1.09), which explain a total of 52.56% of the variance (22.98, 10.52, 8.12, 5.77, 5.18). Based on the Scree plot, Eigenvalues and the percentage of variance explained, a one-factorial solution has merit, but possibly also a three-factorial solution. We additionally performed parallel analysis to determine the number of components using the software *jamovi* 2.3.26 (The jamovi project, 2022). This analysis resulted in a Scree plot with observed and simulated data that supports the three-factor solution (see Figure 1).

Figure 1

Scree Plot Representing Results of an Exploratory Factor Analysis, Extraction Method: Principal Component Analysis, Oblimin Rotation, Parallel Analysis (N = 668)



We conducted two additional exploratory factor analyses. In the first, the *number of extracted components was fixed at one*. The results showed that 20 out of 21 items had a saturation on the fixed component $>.30$ (the remaining item had a saturation of $.25$). This result would mean that all scale items generally described one factor of the Basic Psychological Need Satisfaction in General Scale well. In the second EFA, the *number of extracted components was fixed at three correlated components*. In this solution, 2 of 21 items had cross-loadings $>.30$ (both were originally relatedness items). At the same time, some autonomy and competence items had no saturations on the expected component but had saturations $>.30$ on the second and third component. This result would mean that there are some scale items that generally do not describe the three theoretical factors of the Basic Psychological Need Satisfaction in General Scale as well or as parsimoniously as expected.

When conducting the second EFA, we saved three factor scores as three new variables and correlated them with the scale scores that were formed as a simple linear combination of the theoretically designated items (see Table 2).

Table 2

Intercorrelations Between Three Theoretically Formed Basic Psychological Needs Scale Scores and One General Needs Composite Scale Score With Three Empirically Formed Factor Scores and a General Factor From the Exploratory Factor Analysis (N = 668)

	S-C	S-R	S-G	FA-A	FA-C	FA-R	FA-G
S-A	.45	.47	.82	.68	.50	.46	.74
S-C		.33	.73	.67	.63	.21	.63
S-R			.79	.27	.35	.96	.88
S-G				.68	.62	.73	.97
FA-A					.15	.17	.49
FA-C						.26	.67
FA-R							.83

Note. S-A = scale autonomy; S-C = scale competence; S-R = scale relatedness; S-G = general needs composite scale score; FA-A = factor score autonomy; FA-C = factor score competence; FA-R = factor score relatedness; FA-G = factor score general needs.

All correlation coefficients are statistically significant at $p < .001$.

Scale and Factor Scores Intercorrelations

If we focus on the correlations between the scale scores and the factor scores, only relatedness shows the expected amount of overlap (92%), while scale-competence shares more variance with the factor-autonomy (45%) compared to the corresponding factor-competence (40%), which is a direct result of the (theoretical) competence and autonomy items loading on two different components in the factor analysis. These results suggest great caution regarding the expected correspondence between the theoretically based scale scores and the empirically based factor scores.

Exploratory Factor Analyses: Three Group Factors and One General Factor

As mentioned in the method section, we used the procedures proposed by Revelle and Wilt (2013). The results show that although Cronbach's alpha and Omega total are in the satisfactory range ($\alpha = .82$, $\omega_{\text{total}} = .85$), there is no support for a general factor and three group factors: $\omega_g = .48$, $\text{ECV} = .37$, $\text{RMSEA} = 0.068$ [0.062, 0.073] (see Table 3). In the bifactorial model, only 11 items have saturations on the general factor $> .30$, and 12 items have saturations on the corresponding group factor and/or no cross-loadings (see Figure 2).

Figure 2

Exploratory Hierarchical Solution (on The Left) Versus an Exploratory Bifactorial Solution (on the Right) (N = 668)

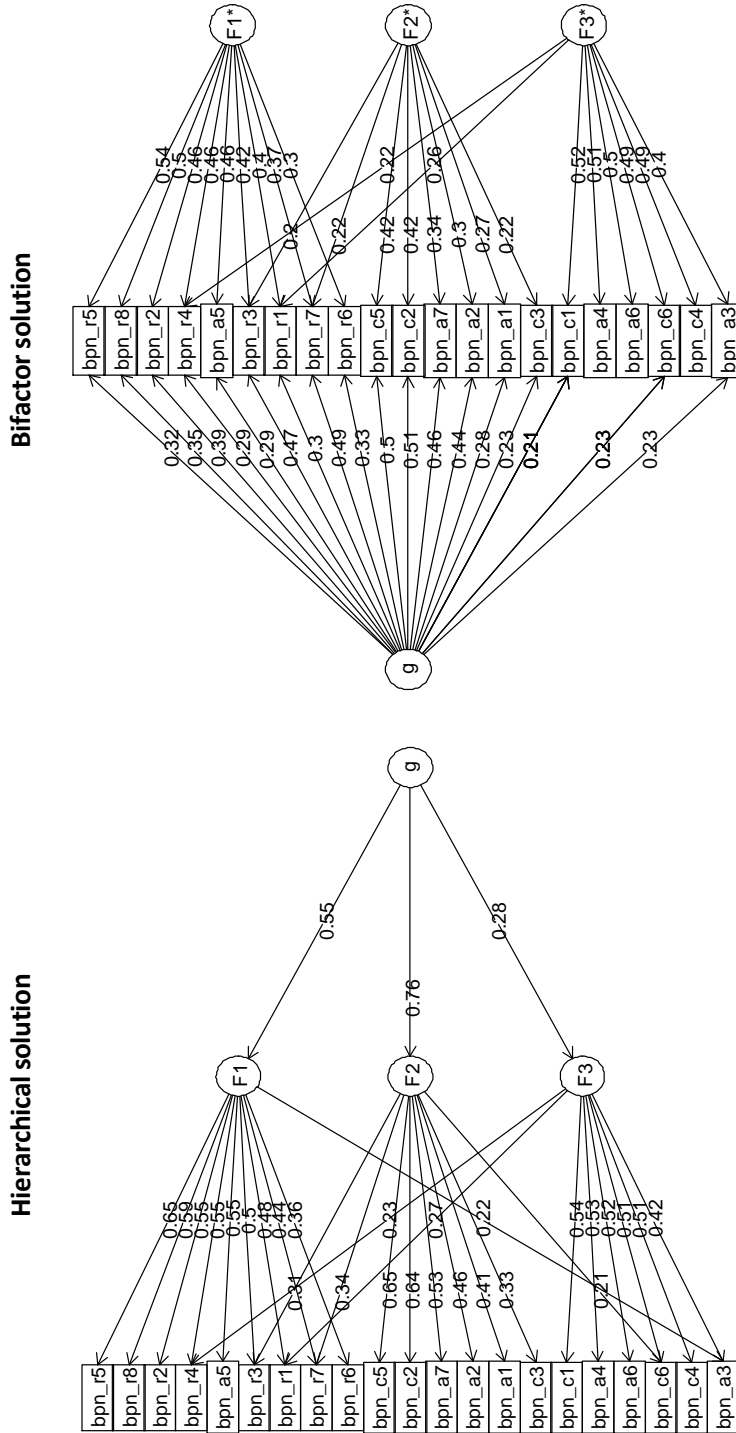


Table 3

Omega Total and Omega General for General Factor and Three Group Factors From Exploratory Factor Analysis (N = 668)

	FA-G	F ₁	F ₂	F ₃
Omega total	.85	.81	.69	.69
Omega general	.48	.33	.41	.10

Note. FA-G = factor score general needs; F₁ = first factor score (loading > .30: 8 relatedness items and 1 autonomy item); F₂ = second factor score (loading > .30: 3 autonomy and 3 competence items); F₃ = third factor score (loading >.30: 3 autonomy, competence, and 2 relatedness items).

Since the EFA indicates: (i) an $\omega_g < .50$, and $ECV < .40$, (ii) that these parameters are significantly lower compared to those from cognitive ability tests with a strong g-factor (Revelle & Wilt, 2012), (iii) the graphical representations do not confirm a good and stable solution, these results suggest, in our opinion, that there is no latent generalized factor of basic psychological needs satisfaction and three specific group factors of basic psychological needs (one for each of the three scales: autonomy, competence, relatedness). Therefore, it would not be advisable to use both scale scores and a composite general score for the BPNSS-G at this time.

Discussion

In this study we aimed to test the plausibility of the general factor hypothesis for the BPNSS-G to emphasize the need for adequate validation of commonly used scales in psychological research. We conducted several analyses in three steps (reliability indicators, EFA, Revelle and Wilt's (2013) recommendations for hierarchical EFA models with group factors and a general factor) to highlight potentially conflicting conclusions.

If only the reliability indicators were calculated for this dataset, only the relatedness scale and the BPNSS-G composite general score scale would achieve satisfactory values. However, this trend should be interpreted considering the current length of the scales and the breadth of the individual constructs (i.e., the two shortest scales have the lowest internal consistency coefficients). If only EFA was conducted using the principal components extraction method with parallel analysis and oblimin rotation, Scree plot would suggest a three-factorial solution. Finally, the results of EFA with hierarchical models as proposed by Revelle and Wilt (2013) would suggest that there is no latent factor for generalized basic psychological needs satisfaction and three group-specific factors for basic psychological needs, so it would not be advisable to use three scale scores simultaneously with the composite general score for the BPNSS-G. We first look at the current situation and then offer two possible ways to further review and improve the scale.

The results of the present study suggest the need to further investigate the psychometric properties of the BPNSS-G in the Croatian population. Johnston and Finney (2010) showed that in three independent U.S. samples there was a consistent need for interventions in the original 21-item scale in order to obtain a clear three-factor structure representing three distinct, but correlated, basic psychological needs. However, in this study only university students were used in all three independent samples (freshman sample, upperclassman sample, and psychology sample). Sevari (2017) examined the psychometric properties of the BPNSS-G on a student sample from Iran, and reported relatively satisfactory reliability coefficients and hierarchical models, noting that the best fit was obtained for the three-factorial model after some items were removed. Schutte et al. (2018) attempted to validate the BPNSS-G in the African context by examining the psychometric properties in three languages (English, Afrikaans, and Setswana) using data from South Africa. The authors opted for the original 21-item version rather than the 16-item version, which had shown better psychometric properties in the American samples in the study by Johnston and Finney (2010). Their results in the African context also confirmed a problematic factor structure for two samples, even after scale modifications.

It seems that most validation studies focusing on the Basic Psychological Needs Scale are based on student samples (e.g., Johnston & Finney, 2010; Schutte et al., 2018; Sevari, 2017; Wei et al., 2005) or are context-specific (e.g., Deci et al., 2001, Gagné, 2003). What we can say is that, as far as the procedure proposed by Revelle and Wilt (2013) is concerned, our dataset does not support the practice of reporting a general indicator of needs satisfaction, as we found no evidence of a general factor for basic psychological needs satisfaction.

It would be difficult to make a clear recommendation as to what a researcher in this field should currently do when using the BPNSS-G. Of course, this result may be an artifact of our dataset and should be replicated in a validation study with a larger and representative sample. However, we believe that this is a very common dilemma among researchers using translated and previously unvalidated scales in their native languages. Of course, from a psychometric perspective, there is no dilemma – one must first and foremost demonstrate the validity and invariance of a translated scale in any language/sample before using it in any scientific or clinical research.

It is (too) often the case that if there is no initial validation study of the scale after it has been translated into another language, each researcher has to make a decision: (i) to (blindly) follow the instructions of the scale authors and form unmodified scale scores or (ii) to conduct factor analyses and other validation procedures using the available (non-representative) sample(s) and possibly make interventions based on the results. If a researcher chooses the first option (i), there is a risk of using scale scores that do not truly reflect the structure of the translated scale. On the plus side, in this case the researcher could theoretically compare their results with other publications using the same scale. On the other hand, if a

researcher chooses the second option (ii), the newly formed scale scores, while psychometrically sound for the specific sample, may not represent population-based results and may not be truly comparable to the original results from other publications.

In case of the basic psychological needs scales, most studies currently form three scale scores corresponding to three basic psychological needs, as described theoretically. This procedure seems reasonable, but our results presented in Table 2, which shows the correlations between the three theoretically formed basic psychological needs scale scores and the three empirically formed factor scores, indicate that the correlations between the corresponding scale-factor scores are lower than expected. This could be partly a result of our factor analytic extraction method and non-orthogonal rotation, but our decision to use a non-orthogonal rotation method was based on both theoretical expectations and empirical practices and results. On the one hand, the SDT has very clear theoretical expectations of three distinct but correlated group factors representing three basic psychological needs. On the other hand, there is empirical evidence for: scale score intercorrelations in the moderate to high positive range (e.g., Deci et al., 2001), the use of three scale scores (averaged) as an indicator of a general basic needs satisfaction (e.g., Gagné, 2003), and the use of correlated factor models in some validation studies (e.g., Johnston & Finney, 2010). Finally, to test the plausibility of the general factor hypothesis for the BPNSS-G using the statistical procedures described by Revelle and Wilt (2013), lower-level factors (i.e., in this case three basic psychological needs scales) are expected to correlate with each other.

Based on our analyses, we believe that there are at least two possible strategies that researchers could adopt to improve the current properties and structure of the scale. The first strategy could focus on the theoretical expectation of the SDT that three distinct scales represent three distinct motivational constructs – needs for autonomy, competence, and relatedness. If a researcher chooses this strategy, they would revise the scale by excluding items with cross loadings, resulting in a (clearer) three-factorial structure, lower correlations between scales, and higher correlations between corresponding factor scores and scale scores, allowing for meaningful scale scores for three basic psychological needs. The second strategy might focus on the empirical results of cross-loadings of scale items that indicate a latent construct of general basic psychological needs satisfaction. If a researcher chooses this strategy, they would revise the scale by adding strategically selected new items to three (currently short and possibly heterogeneous) need scales, which would improve the hierarchical scale structure and result in three more reliable need scales and a general factor indicator. The second strategy may also be considered in line with neuroscientific research on basic psychological needs, which shows functional co-activation between the same two brain regions (striatum and anterior insula) when basic psychological needs are satisfied (Reeve & Lee, 2019). The same authors also found a large positive correlation between the participants' level of psychological

need satisfaction in general and the level of anterior insula activity while imagining intrinsically motivating situations (Lee & Reeve, 2013), and they considered this finding as trait-level psychological need satisfaction (Reeve & Lee, 2019).

Limitations of this study are firstly based on our non-probabilistic and non-random sampling procedure and as such might not be a true representation of the population making our results biased. Additionally, procedures used in this study were chosen in order to demonstrate limited number of psychometric properties. Future research should include other procedures necessary to obtain additional results (e.g., test-retest reliability, correlations with relevant correlates and/or outcomes, confirmatory factor analyses, invariance testing, etc.).

Conclusion

After testing the plausibility of the general (basic psychological needs satisfaction) factor hypothesis by showing diverse reliability indicators, exploratory factor analyses, and exploratory factor analyses hierarchical models as recommended by Revell and Wilt (2013), we found that current dataset does not support said hypothesis. Based on the results of performed reliability and dimensionality procedures, we recommend additional empirically based development of the future BPNSS-G and suggest two possible strategies.

References

- Benson, J. (1998). Developing a strong program of construct validation: A test anxiety example. *Educational Measurement: Issues and Practice*, 17(1), 10–17.
<https://doi.org/10.1111/j.1745-3992.1998.tb00616.x>
- Bratko, D., & Sabol, J. (2006). Osobine ličnosti i osnovne psihološke potrebe kao prediktori zadovoljstva životom: rezultati on-line istraživanja. [Personality and basic psychological needs as predictors of life satisfaction: Results of the on-line study]. *Društvena istraživanja: časopis za opća društvena pitanja*, 15(4–5), 693–711.
<https://hrcak.srce.hr/file/16710>
- Bratko, D., Butkovic, A., Vukasovic Hlupic, T., & Pocrnic, M. (2022). Etiology of basic psychological needs and their association with personality: A twin study. *Journal of Research in Personality*, 97, Article 104201. <https://doi.org/10.1016/j.jrp.2022.104201>
- Butkovic, A., Tomas, J., Spanic, A. M., Vukasovic Hlupic, T., & Bratko, D. (2020). Emerging adults versus middle-aged adults: Do they differ in psychological needs, self-esteem and life satisfaction. *Journal of Happiness Studies*, 21, 779–798.
<https://doi.org/10.1007/s10902-019-00106-w>
- Cooke, P. J., Melchert, T. P., & Connor, K. (2016). Measuring well-being: A review of instruments. *The Counseling Psychologist*, 44(5), 730–757.
<https://doi.org/10.1177/0011000016633507>

- DeVellis, R. F. (2012). *Scale development: Theory and applications* (4th ed.). SAGE.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11, 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Deci E. L., & Ryan R. M. (2014). Autonomy and need satisfaction in close relationships: Relationships motivation theory. In N. Weinstein (Eds.), *Human motivation and interpersonal relationships* (pp. 53–73). Springer.
- Deci, E. L., Ryan, R. M., Gagné, M., Leone, D., Usunov, J., & Kornazheva, B. P. (2001). Need satisfaction, motivation, and well-being in the work organizations of a former eastern bloc country: A cross-cultural study of self-determination. *Personality and Social Psychology Bulletin*, 27, 930–942. <https://doi.org/10.1177/0146167201278002>
- Gagné, M. (2003). The role of autonomy support and autonomy orientation in prosocial behavior engagement. *Motivation and Emotion*, 27, 199–223. <https://doi.org/10.1023/A:1025007614869>
- Johnston, M. M., & Finney, S. J. (2010). Measuring basic needs satisfaction: Evaluating previous research and conducting new psychometric evaluations of the Basic Needs Satisfaction in General Scale. *Contemporary Educational Psychology*, 35(4), 280–296. <https://doi.org/10.1016/j.cedpsych.2010.04.003>
- Lee, W., & Reeve, J. (2013). Self-determined, but not non-self-determined, motivation predicts activations in the anterior insular cortex: An fMRI study of personal agency. *Social Cognitive and Affective Neuroscience*, 8(5), 538–545. <https://doi.org/10.1093/scan/nss029>
- Meyer, B., Enström, M. K., Harstveit, M., Bowles, D. P., & Beevers, C. G. (2007). Happiness and despair on the catwalk: Need satisfaction, well-being, and personality adjustment among fashion models. *The Journal of Positive Psychology*, 2(1), 2–17. <https://doi.org/10.1080/17439760601076635>
- Nunnally, J.C. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.
- Reeve, J., & Lee, W. (2019). A neuroscientific perspective on basic psychological needs. *Journal of Personality*, 87(1), 102–114. <https://doi.org/10.1111/jopy.12390>
- Revelle, W. (2023). *psych: Procedures for psychological, psychometric, and personality research* [Computer software]. Northwestern University, Evanston, Illinois. R package version 2.3.9, <https://CRAN.R-project.org/package=psych>
- Revelle, W., & Wilt, J. (2012). *On when a factor is a general factor* [Conference presentation]. 4th Experts meeting of the European association for personality psychology: Recent developments in personality structure research and important life outcomes. Dubrovnik, Croatia. <https://eapp.org/wp-content/uploads/eappexpertmeetings/dubrovnik2012/EAPP-Dubrovnik-poster.pdf>
- Revelle, W., & Wilt, J. (2013). The general factor of personality: A general critique. *Journal of Research in Personality*, 47(5), 493–504. <https://doi.org/10.1016/j.jrp.2013.04.012>

- Ryan, R. M., & Deci, E. L. (2008). Self-determination theory and the role of basic psychological needs in personality and the organization of behavior. In L. A. Pervin, R. W. Robins & O. P. John (Eds.), *Handbook of Personality: Theory and Research* (pp. 654–678). Guilford Press.
- Schutte, L., Wissing, M. P., & Ellis, S. M. (2018). Problematic factorial validity of three language versions of the Basic Psychological Needs Scale (BPNS): Why and what are the implications?. *Journal of Happiness Studies*, 19(4), 1175–1194. <https://doi.org/10.1007/s10902-017-9861-2>
- Sevari, K. (2017). Construction & validation of Main Psychological Needs Scale. *American Journal of Applied Psychology*, 5(1), 7–11. <https://doi.org/10.12691/ajap-5-1-2>
- The jamovi project (2022). *jamovi*. (Version 2.3) [Computer software]. <https://www.jamovi.org>.
- Vansteenkiste, M., Ryan, R. M., & Soenens, B. (2020). Basic psychological need theory: Advancements, critical themes, and future directions. *Motivation and Emotion*, 44(1), 1–31. <https://doi.org/10.1007/s11031-019-09818-1>
- Vismoradi-Aineh, H., Alipour, A., Ramezankhani, A., Shakeri, J., Yarmohammadi, S., & Marashi, T. (2022). Investigating the relationship between satisfaction of basic psychological needs, general health, and some background variables in the Iranian older adults: A cross-sectional study. *BMC Psychiatry*, 22(1), Article 372. <https://doi.org/10.1186/s12888-022-03979-z>
- Vukasović Hlupić, T., Butković, A., Pocrnić, M., & Bratko, D. (2022). The relationship between three basic psychological needs and big five personality traits: A meta-analysis. *Current Psychology*, 1–20. <https://doi.org/10.1007/s12144-022-04158-9>
- Wei, M., Shaffer, P. A., Young, S. K., & Zakalik, R. A. (2005). Adult attachment, shame, depression, and loneliness: The mediation role of basic psychological needs satisfaction. *Journal of Counseling Psychology*, 52(4), 591–601. <https://doi.org/10.1037/0022-0167.52.4.591>

(Ne)upitna faktorska struktura i psihometrijske karakteristike Skale osnovnih psiholoških potreba na hrvatskome uzorku

Sažetak

Teorija osnovnih psiholoških potreba, jedna od šest miniteorija koje sačinjavaju teoriju samodeterminacije, navodi da postoje tri urođene i univerzalne osnovne psihološke potrebe: potreba za autonomijom, potreba za kompetencijom i potreba za povezanošću. Teorija samodeterminacije pretpostavlja da skale osnovnih psiholoških potreba nisu jednodimenzionalne, ali istovremeno neki autori formiraju tri skalna rezultata i jedan kompozitni rezultat kao indikator generalnoga zadovoljenja osnovnih psiholoških potreba. Cilj je ovoga istraživanja bio testirati hipotezu o postojanju generalnoga faktora zadovoljenja osnovnih psiholoških potreba. Na uzorku od 668 sudionika provjerene su temeljne psihometrijske karakteristike hrvatske verzije Skale osnovnih psiholoških potreba. Na temelju indikatora pouzdanosti (Cronbachova alfa, omega, najveća donja granica, objašnjena zajednička varijanca) jedino skalni rezultati povezanosti i kompozitnoga generalnoga skalnog rezultata dosežu zadovoljavajuću razinu. S druge strane, na temelju eksploratorne faktorske analize s hijerarhijskim modelima ne postoji latentni generalni faktor zadovoljenja osnovnih psiholoških potreba uz tri zasebna grupna faktora osnovnih psiholoških potreba. Možemo zaključiti da hipoteza o postojanju jednoga generalnog faktora zadovoljenja osnovnih psiholoških potreba nije potvrđena pa navodimo dvije potencijalne strategije daljnega razvoja i prilagodbe skale.

Ključne riječi: teorija samodeterminacije, osnovne psihološke potrebe, Cronbachova alfa, omega, eksploratorna faktorska analiza, hijerarhijski modeli

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Appendix

Original Items of the Basic Psychological Needs Satisfaction Scale - General (BPNSS-G; Deci & Ryan, 2000) in *Italic* and the Used Croatian Translation

I pretty much keep to myself and don't have a lot of social contacts.

Ne družim se previše s ljudima, uglavnom sam sam/a.

I feel like I am free to decide for myself how to live my life.

Osjećam se slobodnim/om odlučivati kako živjeti svoj život.

I really like the people I interact with.

Sviđaju mi se ljudi s kojima se družim.

Often, I do not feel very competent.

Često se ne osjećam previše sposobnim/om.

I get along with people I come into contact with.

Dobro se slažem s ljudima s kojima dolazim u kontakt.

I generally feel free to express my ideas and opinions.

Uglavnom osjećam da mogu slobodno izražavati svoja mišljenja i ideje.

There are not many people that I am close to.

Nema puno ljudi s kojima sam blizak/a.

People I know tell me I am good at what I do.

Ljudi koji me poznaju tvrde da sam dobar/a u onome što radim.

I feel pressured in my life.

Živim pod pritiskom.

I have been able to learn interesting new skills recently.

U zadnje vrijeme naučio/la sam neke zanimljive nove stvari (vještine).

In my daily life, I frequently have to do what I am told.

U svakodnevnom životu često moram raditi ono što drugi kažu.

I consider the people I regularly interact with to be my friends.

Ljude s kojima se često družim smatram svojim prijateljima.

People I interact with on a daily basis tend to take my feelings into consideration.

Ljudi s kojima se svakodnevno družim vode računa o mojim osjećajima.

In my life I do not get much of a chance to show how capable I am.

U životu nemam dovoljno prilika pokazati koliko sam sposoban/a.

People in my life care about me.

Ljudi u mom životu brinu o meni.

There is not much opportunity for me to decide for myself how to do things in my daily life.

Nemam puno mogućnosti odlučivati o tome kako ću svakodnevno provoditi svoj život.

Most days I feel a sense of accomplishment from what I do.

Većinu vremena u onome što radim imam osjećaj uspjeha ili postignuća.

People are generally pretty friendly towards me.

Ljudi su uglavnom prilično prijateljski raspoloženi prema meni.

The people I interact with regularly do not seem to like me much.

Izgleda da se previše ne sviđam ljudima s kojima se svakodnevno družim.

I often do not feel very capable.

Često se ne osjećam dovoljno sposobnim/om.

I feel like I can pretty much be myself in my daily situations.

U svakodnevnim situacijama osjećam da mogu biti onakav/a kakav/a jesam.